

AIRCRAFT GENERAL (Details refer to a C152)

Written Question	Ref	Short Answer
1. What is the name and type of flap on the C152?		
2. What is the name and type of ailerons on the C152?		
3. What is the type of the oil used in aircraft engines?		
4. Is it different in Winter? Do they have a different viscosity?		
5. Is a different oil used to run in an engine?		
6. List five uses of engine oil.		
7. Why does power decrease with height?		
8. The Mixture control and its use. Explain when and why and how to lean the mixture.		
9. Explain Prop Slip.		
10. What is pre-ignition?		
11. What is detonation?		
12. How does an impulse magneto work, and why is it necessary?		
13. Why do we need two magnetos?		
14. Where is the battery located on Cessna 152 and what type is it?		
15. Why do we check the magnetos before shut down?		
16. What Is the Cessna 152 electrical system 12V or 24V?		
17. What is the VNE of a Cessna 152?		
18. Explain what is VNO		
19. Explain what is VFE		
20. Where is First Aid kit on the aircraft?		
21. Where is fire extinguisher located? What type of extinguisher?		
22. Explain the Fuel system and capacity of tanks.		
23. Explain the Fuel cap and type of fuel.		

24. Why do we check fuel drains on pre-flight?		
25. If offered fuel other than 100LL, would you take higher or lower octane? Why?		
26. Why do we warm the engine in a descent.		
27. Explain the nosewheel Oleo extension?		
28. Why allow an engine to slow run before stopping?		
29. Why use mixture control to stop engine?		
30. What are the causes and symptoms of carb icing and how is it prevented?		
31. Why not use carb heat for take-off?		
32. What is the effect of using carb heat when we have icing?		
33. If hot air stops carb icing, why not use hot air at all times?		
34. Could you fly with carb heat partially on?		
35. Why does carb ice form more often when the throttle is closed?		
36. What is the most likely cause of a sudden engine stoppage?		
37. Under what circumstances would we need to turn the propeller by hand before starting?		
38. Why has an aero engine twice the cubic capacity of a car engine for the same output?		
39. What is volumetric efficiency?		
40. Describe the 4 Stroke Cycle.		
41. Explain monocoque construction.		

INSTRUMENTS

Written Question	Ref	Short Answer
1.What are the properties of a gyroscope?		
2.Describe an artificial horizon and its errors?		
3.How does an artificial horizon erect after toppling?		
4.Explain all the errors of a DI.		
5.Explain why the turn coordinator does not topple.		
6.What pressure instruments are there?		
7.What happens to the ASI, Altimeter and VSI if the static line is blocked? What happens if the pitot blocked?		
8.What are the errors of an altimeter?		
9.Explain why compass errors occur.		
10.What is an isogonal?		
11.Why is engine failure more dangerous in cloud?		
12.What does a T/C show?		
13.What is the danger of descending at 3000fpm on instruments?		
14.What is the pendulous unit on an artificial horizon?		

NAVIGATION

Written Question	Ref	Short Answer
1. Define a great circle and a rhumb line.		
2. How do you work out your correction angle if you are 4 degrees off track 2/3 down track		
3. Explain the 1 in 60 rule and drift lines		
4. How would you answer questions 2 using the 1:60 Rule?		
5. Describe two ways of checking for track error?		
6. Explain all ways to measure distance on a half mil chart?		
7. How is track measured on a map? Why is it necessary to Measure from the centre?		
8. How is the highest spot height on the map shown?		
9. Explain two standrd parallels		
10. Explain how Danger/Restricted Areas are shown on half million map.		
11. Explain the lost Procedure		
12. What advise would you give them if flying in deteriorating weather?		
13. What facilities are available from a staion offering VDF?		
14. What is QDM/QDR?		
15. How do you determine safety heights/Altitudes		
16.How is highest point depicted on half million map?		
17. What sort of map projection is the half million series?		
18. What is regional QNH?		
19. What is a line drawn on a half million called?		
20. Is the scale constant on half million?		
21. Where is the scale accurate?		

METEOROLOGY

Written Question	Ref	Short Answer
1. What causes radiation fog? How does it dissipate?		
2. What causes Dew and Hoar frost?		
3. Explain Advection, Sea, and Hill fog.		
4. Why advection fog over shallow water but not over deep water?		
5. What is the cause of fog rolling in from the sea?		
6. Explain 3 stages of the life of a Thunderstorm		
7. Dangers of descending through freezing stratus?		
8. Would you expect cloud base to be higher on windward or leeward side of the mountain?		
9. What is stability and instability in the atmosphere?		
10. What is adiabatic cooling?		
11. Explain CB dangers to pilots?		
12. Why are some hailstones larger than others?		
13. Why do cumulus clouds have flat bottoms?		
14. What determines the vertical extent of a CU or CB?		
15. Explain Mountain Waves (standing waves) and associated dangers.		
16. Draw a warm front cross section.		
17. Draw a cold front cross section.		
18. How wide are rain belts along a warm front?		
19. What kind of weather can be expected in a warm sector?		
20. Looking at a partially occluded front- which way will it be moving?		
21. Explain how to read a TAF/METAR.		
22. Explain Land/Sea Breezes?		

23. Explain Katabatic and Anabatic Winds.		
24. Why do winds rotate around a low?		
25. What sort of wind is the Mistral an example of?		
26. What is a Col and what weather might you experience in one?		

AIR LAW

Written Question	Ref	Short Answer
1. How long do you keep student records?		
2. What paperwork do you check before sending a student solo.		
3. How long after finishing your flying training must you sit your skills test?		
4. Your student is flying a solo circuit detail. How much fuel does he require?		
5. You ask your student to do a check A. Can they do it legally?		
6. Does a student have to pass Air Law before First Solo?		
7. Where would they find the details of the check A?		
8. In the air, you are receiving a flashing red light, what does it mean. On the ground what does it mean?		
9. Explain Deferred Defects on a tech log		
10. What defects cannot be deferred?		
11. What information is required to keep a Pilot log book valid		
12. Can PPL training be carried out from any airfield?		
13. Could you change the tyre on an aircraft?		
14. Pilot maintenance, what can be done and where can you find out?		
15. Aircraft documents- Explain		
16. Where would you find the C152 Aircraft maintenance Schedule		
17. Explain the Maintenance Schedule for a light Aircraft?		
18. What is a CRS?		
19. What is an ARC and how long is it valid?		
20. Explain Privileges of the FI (R) and CRI Rating?		
22. How does a PPL keep current to carry passengers?		
23. Explain Revalidation procedure for an FI rating?		
24. Explain Renewal/Revalidation of SEP Rating?		

25. PPL Skills test. What if a partial is achieved?		
26. Define VMC and IMC briefly?		
27. Give the meaning of QFE, QNH and QNE?		
28. Flyng from Andrewsfield, why do we set London QNH?		
29. Explain transition levels and altitudes?		
30. Explain the semi circular rules?		
31. When can the base of an airway be crossed?		
32. What is the meaning of the ground signal: red background with two vertical stripes?		
33. What is the meaning of the ground signal: white barbell with black stripes		
34. Standardisation in training- why?		
35. Explain the term Threat and Error Management with regard to Aviation		
36. Control zone and area- difference?		
37. Draw a MATZ zone and dimensions?		
38. Explain dimensions of a ATZ		
39. Radio aids for flight- requirements- ANO?		
40. Can a PPL fly in Controlled Airspace?		
41. Is there any instrument flight requirement for the PPL?		
42. Explain rules for overtaking in the air, and on the ground		
43. explain collision avoidance procdures in the air.		
44. A PPL holder flies in Class G airspace, what would be their minimum limits to maintain VFR?		
45. What is the meaning of two yellow stripes on a red background?		
46. An aircraft with an American flight manual has CAA amendments in the back, what has priority?		

PRINCIPLES OF FLIGHT

Written Question	Ref	Short Answer
1.Explain Lift.		
2. How does lift act in relation to the relative air flow?		
3. Explain drag?		
4. How can wing design improve the stalling characteristics of an aircraft?		
5. Why does a wing stall?		
6. Why do you get pre stall buffet?		
7. Why might a wing drop at a stall?		
8. What is wash out? What is it's purpose?		
9. Why not opposite aileron to recover from wing drop stall?		
10. Give two reasons for root spoilers.		
11. Why rudder first then stick forward for spin recovery?		
12. Why doesn't an aircraft spin if rudder is used to late?		
13. Why does the nose drop in a stall?		
14. How is stability maintained in an aircraft in all three axis?		
15.Explain Forces in straight and level Flight?		
16.Explain Forces in a turn?		
17. How do we determine a rate one turn? What determines the rate of turn and radius of turn?		
18. Why is extra power needed in a steep turn?		
19. Why is the stalling speed higher in a steep turn?		
20. What are the forces in a climb?		
21. Why do we need less lift in a climb?		
22.Explain best glide speed and is it a variable?		
23What is the difference between Vx and Vy climb?		
24. Draw the forces in the glide and explain why the optimum glide cannot be improved upon?		

25. Explain Three types of flaps – advantages/disadvantages?		
26. Why slots, slats and strakes? How do they work?		
27. What is V_a ?		
28. Explain the difference between Stabilator/Elevator and anti-servo tab/anti-balance tab.		
29. What are V_{ne} and V_{fe} ?		
30. What is longitudinal dihedral?		
31. What is flutter? How is it prevented?		
32. Explain Adverse aileron yaw.		
33. Explain Frise Ailerons		
34. Why is the propeller twisted?		
35. What is meant by the term “the solidity of a propeller”?		
36. Why variable pitch props?		
37. What is aileron drag? What are its causes, and how can it be reduced?		
38. What are differential ailerons?		
39. Do we need to hold on/off bank during a climbing/descending turn?		
40. Define Fineness ratio.		
41. Define Aspect ratio.		
42. What effect has an aft c of g on an aircraft stability		
43. What happens to the glide angle when you lower flaps?		

PERFORMANCE

Written Question	Ref	Short Answers
1. How do we fly for maximum range?		
2. How do we fly for maximum endurance?		
3. Explain the difference between Utility and Normal category		
4. What effect would flying over MAUW have on performance.		
5. How is aircraft Category affected by weight and balance?		
6. What allowances would you make for a C152 taking off from a grass airfield with a 2 up-slope?		
7. The M.A.U.W. of Cessna 152.		

HUMAN PERFORMANCE & LIMITATIONS

1. If a student is going on a cross-country with a first landing on a tarmac runway, what briefing would you give them about landing there?		
2. What if it was a long thin runway?		
3. Symptoms of Carbon monoxide poisoning.		
4. Lack of oxygen and symptoms.		
5. Why should you not fly with a cold?		
6. What advice would you give to a student about drinking, taking drugs and flying?		
7. What is the difference between Hypoxia and Hyperventilation?		

TEACHING & LEARNING

1. When you are lecturing, how would you ask questions, at random etc?		
2. What would you do for a student who was often air sick?		
3. What are the disadvantages/advantages of multi-choice exams?		
4. Why do we teach from a syllabus?		
5. What are the best attributes for an Instructor to have? (knowledge and patience).		